

The line of the grinding-edge of the check-teeth being taken as a basis, the angle was in the first paper \* deduced from that formed by the terminal part of the incisor; but later on † I have found it better to use the whole extruded part of the latter tooth. But since the description of the taking of the angle might be easily misinterpreted, I have now had prepared the accompanying diagram showing the way the process is carried out and the angle read off. This will, I hope, facilitate the work of other observers.

Incisors thrown forward are those with a high resultant angle, and might be called, as suggested in 1918 ‡, "pro-odont," upright ones (approximating 90°), "orthodont," and those turned in towards the throat, with low angular index, "opisthodont."

The benefits of such definition as is given by a numerical angle have already been fully emphasized, and need not be here again detailed.

### XXIX.—*Papers on Oriental Carabidæ*.—III.

By H. E. ANDREWES.

#### CARABINI.

##### *Calosoma beesoni*, sp. n.

Length 24–25 mm. ; width 10·5 mm.

Black; vertex and sides of head, sides of prothorax, elytra, and underside (except along median line) æneous.

Head (4·5 mm. wide) convex, closely punctate, more finely on neck, strigose near eyes; mandibles not much curved, with moderate cross-striation; joints 2 and 3 of antennæ compressed, with a sharp edge, 3 half as long again as 4.

Prothorax transverse (7 × 4·5 mm.), cordate, bordered in front and at sides, slightly emarginate in front; base bisinuate, hardly wider than apex; sides strongly rounded, faintly sinuate behind, border not quite reaching base; median line faint; basal foveæ rather small, adjacent to hind

\* J. Bombay N. H. Soc. xxiv. p. 408 (footnote) (1916).

† Ann. & Mag. Nat. Hist. (8) xviii. p. 302 (footnote) (1916).

‡ *Ibid.* (9) i. p. 35 (footnote) (1918).

angles; surface moderately convex, closely punctate, more sparsely on disk, more coarsely along base and front margin.

Elytra moderately short and wide, nearly four times as long as prothorax, with a long scutellary stria, a fine sutural stria, and fifteen more or less crenulate striæ (punctate on disk near base); a wide aciculate marginal area, in which towards apex two further ill-defined striæ can generally be detected; primary intervals (4, 8, and 12) with a series of shallow, brassy punctures, each with a fine raised point; all intervals imbricate, but on the first two or three near base the cross-lines are replaced by fine punctures; interval 6 usually wider towards apex, with the surface irregularly broken up.

Underside coarsely punctate, more finely on middle of ventral surface; metasternum smooth, middle of prosternum nearly so, the punctures more or less confluent on metepisterna and sides of ventral surface, latter irregularly depressed, last segment transversely striate; grooves on prosternal process not reaching apex, metepisterna hardly longer than wide, a tuft of hairs on their outer margin near base.

♂. Front tarsi with three dilated joints; intermediate tibiæ curved, hind tibiæ straight, former densely clothed on inner and middle of outer surface, latter on inner surface towards apex with light brown hairs.

♀. All tibiæ straight, the intermediate ones clothed with light brown hairs on middle of outer surface.

The species belongs to Motschulsky's *Caminara* group, and is closely allied to *C. imbricatum*, Klug, but a little larger; the colour is almost identical. Head more coarsely punctate, less noticeably striate near eyes; mandibles much more finely striate, antennæ thicker; prothorax more coarsely punctate, a little less contracted behind; punctures on the primary intervals of the elytra less numerous; underside much more coarsely sculptured, intermediate tibiæ (♂) more curved.

N. India, United Provinces: Mondali, Kathian, Molta, and Bodyar, all Jaunsar Himalayas, 7500'–8000' (*C. F. C. Beeson*). Thano, Dehra Dun District, 4000'. Kalela Forest, Simla Division, "found eating the deodar's defoliating caterpillar." 11 ex., ♂ ♀. All Forest Research Institute, Dehra Dun.

N.W. Himalayas (*E. P. Stebbing*) 5 ex., all very defective. British Museum.

The type (*Beeson*) is in the British Museum.

## O M O P H R O N I N I.

*Omophron rotundatum*, Chaud.

This species was described by Chaudoir from Mesopotamia and the Transcaucasian Provinces of Russia. In the collection of the Indian Museum, Calcutta, there are two examples (both very defective) which I refer to this species, one labelled "Quetta, Baluchistan (*Webb-Ware*)," the other "Mussoorie, W. Himalayas, c. 7000 ft." In both the green patch on the prothorax continues nearly to the side margin, the colour, however, merging into brown, lighter in the Quetta, darker in the Mussoorie example. In the former there is a small, rather faint fuscous spot at the middle of the base of the elytra; in both examples the sides of the median green patch on the elytra are quite dissociated from the central part, and form separate rounded spots; the hind patch is of the same width as in the type-form, but longer.

*Omophron bicolor*, sp. n.

Length 3·75–4·0 mm.; width 2·75–3·0 mm.:

Black; upperside blue-green; labrum, clypeus, middle of front, antennæ, palpi, legs, ventral surface, and a broad border on prothorax and elytra, together with epipleuræ, testaceous.

Head moderately convex, flat in front, shiny, moderately and sparsely punctate, the testaceous colour on clypeus and front not quite reaching level of hind margin of eyes.

Prothorax strongly transverse, moderately convex, base projecting backwards in middle and bisinuate at sides, emarginate in front; front angles acute, porrect, contiguous to eyes, hind angles about right, side margin reflexed but continuing with hardly any break the contour of elytra; median line just visible, surface shiny, moderately and uniformly punctate, smooth near margin, testaceous border covering on each side in front one-fourth of width of front margin, but contracting to half the width at base.

Elytra rather flat for the genus, not much dilated below shoulder, widest at a fourth from base; striate-punctate, the punctures evanescent towards apex, striæ 1–12 and 15 clearly marked, only traces of 13 and 14 visible, intervals smooth; the broad testaceous border reaches stria 9 at base, contracts to stria 10 at a third from base, expands again to

stria 7 at a half, and contracts to stria 9 at two-thirds; the green colour, pointed at extremity, does not quite reach apex, and the line of junction of the two colours is a little jagged throughout.

Underside coarsely but sparsely punctate, ventral surface smooth.

Larger than *O. bretteinghamæ*, Pasc., similar in outline, but much less convex, a bluer green in colour, testaceous border on both prothorax and elytra much wider, the line where the colours meet on the elytra much less regular, striae less evanescent towards apex.

Dacca 1 ex., "India" 2 ex., all from coll. Bowring. British Museum.

Calcutta, Eden Gardens, 7.xi.1911 (*F. H. Gravely*), 1 ex., "at light." Indian Museum.

*Omophron testudo*, sp. n.

Length 7.0–7.5 mm.; width 4.5–5.0 mm.

Brown-black; vertex and sides of head, a large spot on prothorax, and elytra dark green; front, clypeus, labrum, palpi, front and sides of prothorax, two irregular fasciæ on elytra, with margins, apex, and epipleuræ, ventral surface and legs testaceous-red.

Head wide (2.25 mm.), front smooth, but with a little transverse striation, finely striate near eyes, green area at back coarsely shagreened, very coarsely, sometimes confluent punctate, clypeal suture angular in middle.

Prothorax strongly transverse (3.75 mm. wide), both front and hind margins produced in middle, latter slightly bisinuate on each side, median projection forming an obtuse angle, former emarginate on each side behind eyes, all angles acute, width gradually increasing from apex to base, sides slightly rounded in front and faintly sinuate before hind angles; surface coarsely shagreened, smoother at sides, longitudinally striate along base, middle of base flattened and coarsely punctate, sparsely punctate along front margin, median line fine but distinct, not reaching margins; green patch more or less rectangular, extending from middle of base a little more than halfway towards both apex and sides, margins ill defined.

Elytra shortly oval, shiny, with fifteen very finely punctate striae, of which only 1 and 15 actually reach apex, 2, 3, 7, 8, and 11 terminating long before it, intervals convex, minutely

and sparsely punctate. The front fascia is wide at the margin and just reaches the shoulder; it contracts and almost disappears on interval 10, widens again over 7 and 8, contracting and disappearing on 5. The hind fascia is similar outwardly, but inwardly it extends over interval 4. The testaceous apical area sends an arm forward along intervals 7-9; the green colour extends nearly to apex along intervals 1 and 2.

Underside smooth and glabrous; prosternum in front of coxæ, its episterna at base, and the prosternal plate with a few punctures, last-named bordered at sides, subocular ridge well marked, extending inwards rather beyond buccal fissure, the area between it and the eye longitudinally striate. The first two joints of the front tarsi and the first joint of the intermediate tarsi are dilated in the ♂.

I have compared examples of this species with a specimen in my collection taken by Père Cardon at Nowatoli in Chota Nagpur, which (though I have not had the opportunity of comparing it with the type) I identify with *O. guttatum*, Chaud. The new species is larger, more nearly circular, but otherwise very similar both in form and pattern, though in *C. guttatum* the latter is more clearly defined. Head more roughly sculptured, more coarsely punctate, clypeal suture with an angle in the middle, instead of semicircular, subocular ridges similar; sides of prothorax more rounded, base flattened, surface more coarsely but less punctate; intervals of elytra more convex, surface more shiny, front fascia extending inwards to interval 5 only (in *guttatum* it reaches 4), hind fascia and testaceous apical area wider, the latter with a more jagged front margin; punctures on prosternum and its episterna fewer.

Annam: Keng Trap. Tonkin: Tranninh. Laos: Ko Kieng (*R. Vitalis de Salvaza*), 5 ex. The type is in the British Museum.

In the genus *Omophron* there is usually present beneath the head on each side a *subocular ridge*. This runs inwards and a little forwards from near the side of the head and extends as far as the buccal fissure or even beyond it. The area between the ridge and the eye is somewhat depressed and rugose or punctured. In *O. limbatum*, F., the ridge is short and inconspicuous, the area in front of it coarsely punctate. In the species just described the ridge is very evident, the front adjacent area longitudinally striate, without punctures. I mention this character, as I find it a variable one and I think it may possibly prove useful for purposes of classification.

OZÆNINI.

Before describing any new species I give a table of the Oriental genera:—

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|--------|---|---------------------|
| 1 (4). | Ligula bisetose or ending in a sharp spine, last joint of palpi cylindrical, genæ embracing back of eye, mentum toothed, joint 11 of antennæ shorter than 9+10.   |                     |
| 2 (3). | Ligula ending in a sharp spine; paraglossæ wide, with setose margins, extending far beyond ligula, but not enveloping it; genæ forming a tooth and extending outwardly beyond level of eye*; mandibles with three or four teeth; both labrum and clypeus without setæ on upper surface. . . . . | PSEUDOZÆNA, Cast.   |
| 3 (2). | Ligula bisetose, completely enveloped by the paraglossæ, which are glabrous; genæ not extending outwardly beyond eye-level; mandibles with one or two teeth; front margin of labrum plurisetose (8-setose in <i>I. castaneus</i> , Schm. Goeb., and 12-setose in <i>I. dentatus</i> m.)         | ITAMUS, Schm. Goeb. |
| 4 (1). | Ligula quadrisetose, paraglossæ wanting (or at all events indistinguishable), last joint of labial palpi acuminate, genæ not embracing back of eye, joint 11 of antennæ equal to or longer than 9+10.   |                     |
| 5 (6). | Mentum with an obtuse tooth; front margin of labrum plurisetose but not denticulate (8-setose in <i>D. bioculata</i> m. and 6-setose in <i>D. parallela</i> m.); joint 11 of antennæ=9+10 . . . . .   | DHANYA, gen. nov.   |
| 6 (5). | Mentum edentate; front margin of labrum plurisetose and denticulate (8-setose in <i>E. plagiata</i> , Schm. Goeb., <i>E. japonica</i> , Bates†, and <i>E. matanga</i> m., 10-setose in <i>E. bryanti</i> m.); joint 11 of antennæ =8+9+10 . . . . .   | EUSTRA, Schm. Goeb. |

*Itamus dentatus*, sp. n.

Length 15·0–17·5 mm.; width 4·0–5·0 mm. (The further measurements given are those of the larger specimen, which is the type.)

\* Of *P. spissicornis*, Fairm., of which I have not seen an example, its author says “tuberculo pone-oculari nullo.” Mr. Lesne (Mission Pavie, 1904, 62, t. 8, f. 13) says that the species belongs to another genus.

† In Ann. Soc. Ent. Belg. 1913 (published 2.i.1914), p. 418, Commandant Dupuis says that in *E. japonica*, Bates, joint 11 of the antennæ =9+10. I have numerous cotypes before me and find that 11 = 8+9+10 as in the other species of this genus.



Pitch-black above, dark red beneath; tibiæ and tarsi nearly black.

Head large (3.75 mm. wide), flat, uneven, sides of front depressed, leaving a raised area in middle, a few setiferous pores on vertex and sides; front margin of labrum 12-setose, including a large setiferous pore on each side, just behind the rounded angles; clypeus transverse, with well-marked suture, finely and remotely punctate, slightly emarginate in front, a seta at each side.

Prothorax transverse (4.0 × 3.5 mm.), moderately convex on disk, margins explanate and reflexed behind, with half-a-dozen setiferous pores; apex widely but faintly emarginate, much wider than base, which is truncate; sides almost parallel in front, rather strongly contracted about middle and sinuate before base; front angles sharp, slightly acute, porrect, hind angles right, but sharp, projecting a little laterally, median line short, bounded by transverse impressions, which are well marked; surface shiny on disk, with a few coarse setiferous punctures, margins rougher, longitudinally striate in front, coarsely and irregularly transversely striate along base.

Elytra elongate, parallel, not quite three times as long as prothorax, shoulders carinate but not dentate, a recurved outwardly channelled tooth at a fourth from apex; striæ deep, coarsely shagreened and vaguely punctate, intervals smooth, odd ones seriatly punctate, an uninterrupted row of umbilicate pores along margin.

Underside sparsely punctate and pubescent, more evidently on ventral surface; front femora with a strong tooth.

Much larger and darker than *I. castaneus*, surface rougher, front margin of labrum 12-setose, instead of 8-setose, front femora with a strong tooth (in *I. castaneus* the front femora have a short fine carina on the middle of the underside, which occasionally develops into a moderate tooth).

Tonkin: Hoabinh, 2 ex. (*R. Vitalis de Salvaça*). The type is in the British Museum.

#### DIHANYA, gen. nov.

Ligula short, truncate at apex, quadrisetose, paraglossæ wanting.

Mentum with a broad rounded tooth in the emargination, much shorter than side lobes, which are outwardly rounded and obtuse at apex.

Palpi sparsely setose, acuminate at apex; in the maxillaries 4 is half as long again as 2, which is strongly dilated

outwardly, 3 very short; labials with penultimate plurisetose on inner margin.

Maxillæ slender, hooked at tip, inner margin ciliate.

Eyes moderately prominent, not embraced behind by genæ.

Labrum elongate, truncate, plurisetose, and without denticulations along front margin.

Antennæ clavate, pubescent, but only densely so from (and including) joint 5; joints strongly transverse towards extremity, joint 11 = 9 + 10.

Sides of prothorax not much contracted behind, margins more or less crenulate, without denticulations.

Elytra elongate, parallel, an incision and recurved tooth at external angle of apical truncature.

Tarsal joints short; in hind legs 1 = 2 + 3 + 4 = 5; claws simple; underside of front tarsi naked, but I cannot distinguish the sexes.

The type of the genus is *D. bioculata* m.

The name is derived from a Kanarese word meaning "a grain of corn."

*Dhanya bioculata*, sp. n.

Length 4.0 mm.; width 1.6 mm.

Dark testaceous; head, prothorax, and suture of elytra dull red, antennæ (except joint 1) fuscous; each elytron with a roundish spot just before middle, not quite reaching margin or suture, and apex black.

Head elongate, smooth, shiny, moderately convex; frontal foveæ large, fairly deep and rugose, a small curved impression behind clypeal suture; sides longitudinally striate, bounded outwardly by a ridge; eyes small, antennæ reaching a little beyond base of prothorax; ligula hidden behind base of labial palpi, labrum 8-setose along front margin.

Prothorax transverse, moderately convex, shiny, rather wider than head, equally contracted at extremities, widest at middle, truncate at base, widely though slightly emarginate at apex; sides with a fine reflexed border, very faintly crenulate towards base, gently rounded in front, with a wide though slight sinuation before base, some setiferous pores along sides and sides of front margin; both front and hind angles about right, projecting a little laterally, median line well marked, reaching base but not apex, a depressed and finely granulate area near hind angles; surface glabrous on disk, sparsely pubescent near margin, finely striate along base.

Elytra convex, parallel, rather compressed at sides, half as wide again as prothorax and three times as long, shoulders



square; surface shiny, the striæ vaguely indicated by rows of faint punctures, glabrous on disk, but with several setiferous pores on intervals 3 and 5, shortly pubescent at sides and apex, where the surface is finely granulate, a row of umbilicate setiferous pores along margin.

Underside finely granulate, nearly smooth along median line, sparsely punctate and pubescent, more obviously so on last ventral segment.

S.E. Borneo: Martapura, 1891 (*Doherty*), 2 ex. British Museum.

*Dhanya parallela*, sp. n.

Length 4.0 mm.; width 1.5 mm.

Testaceous; head, prothorax, and antennæ red; elytra with an ill-defined blackish area, covering the middle third of each elytron, wider outwardly, but not quite reaching either margin or suture; ventral surface fuscous.

Head convex (0.75 mm. wide), smooth, moderately shiny, a curved depressed line on middle of front, bicarinate at sides; labrum 6-setose; mandibles and maxillæ both very sharp at apex; ligula short, but not concealed, slightly emarginate at apex. I am unable to determine the number of setæ on the penultimate joint of the labial palpi.

Prothorax a little transverse (1 mm. wide), disk convex; side margins explanate, widely so behind, base truncate, hardly wider than apex, which is emarginate; sides forming an obtuse angle at two-fifths from apex, margin obviously crenulate, almost straight from front to side angle, and from side to hind angle; several setæ just inside border; front angles sharp, strongly porrect, hind angles right, reflexed, transverse impressions and median line well marked; surface moderately shiny, almost smooth, a little rough near base, with a few irregularly disposed, long, erect setæ.

Elytra more than three times as long as prothorax, elongate, parallel; shoulders very square, a re-entrant angle at suture; disk flat, depressed at a third from base, sides compressed rather behind middle; striate-punctate, but the striæ, though fairly regular, are not well defined; intervals smooth, rather shiny, 3 and 5 with a row of erect setæ.

Underside sparsely punctate and pubescent, more obviously on ventral surface; front femora with a blunt tooth.

The species differs in many points from *D. bioculata* m.; the ligula is a little longer, maxillæ more acute, labrum 6-setose; front angles of thorax more acute, sides angular, striæ of elytra more clearly defined, especially at base, disk

flat and depressed near base, dark spot less clearly defined, front femora dentate.

W. Sarawak, Mount Matang, 2000', 23.i.14 (*G. E. Bryant*), 1 ex. in my collection.

## EUSTRA.

- 1 (2). Size 6 mm., labrum 10-setose, front margin of prothorax deeply excavated . . . . . *E. bryanti* n.
- 2 (1). Size 2.5-3.0 mm., labrum 8-setose, front of prothorax emarginate.
- 3 (4). Side border of prothorax without denticulations, front angles very sharp and acute . . . . . *E. plagiata*, Schm. Goeb.
- 4 (3). Side borders of prothorax evidently denticulate, front angles sharp, but less acute, very slightly rounded at tip.
- 5 (6). Size 3.0 mm., prothorax strongly transverse, side margin widely reflexed, border finely denticulate . . . . . *E. japonica*, Bates.
- 6 (5). Size 2.5 mm., prothorax moderately transverse, side margin narrowly reflexed, border more strongly denticulate . . . . . *E. matanga* n.

*Eustra matanga*, sp. n.

Length 2.5 mm.; width 1.0 mm.

Testaceous; apex of antennæ a little darker, head reddish-brown, a large ill-defined discal spot on each elytron infuscate.

Head (0.6 mm. wide) smooth, shiny, convex, moderately constricted at some little distance behind eyes, some fine ridges on each side close to eye, one of which is continued round the eye behind; antennæ clavate, moniliform, pubescent, reaching middle of body.

Prothorax transverse, as wide as head, widest at a third from apex, base truncate but oblique near hind angles, much narrower than apex, which is emarginate, sides rounded in front, sinuate before hind angles and rather widely reflexed, border with 8 to 10 small teeth, which are well marked towards base; front angles porrect, acute; hind angles reflexed, slightly obtuse; transverse impressions and basal foveæ fairly deep, median line reaching base and forming a shallow fovea where it meets front transverse impression, but not extending to apex; surface smooth, shiny, a little uneven along base.

Elytra convex, three times as long as prothorax, base emarginate, shoulders prominent; side border reflexed, very obliquely truncate at apex, with a slight re-entrant angle, a

small sharp excision just behind the outer angle of the truncature, followed by a raised tooth; a longitudinal depression at sides on each elytron; surface shiny, smooth, uneven at sides, with scattered shallow punctures, and a slight raised pubescence.

Smaller than *E. japonica*, Bates; prothorax less transverse, sides less rounded in front, reflexed border much narrower, more strongly dentate; elytra narrower, more parallel, smoother, less punctate and pubescent, infuscate patches larger.

W. Sarawak, Mount Matang, 16.i.14 and 1.ii.14 (*G. E. Bryant*), 3 ex. The type is in my collection; a co-type is in the British Museum.

*Eustra bryanti*, sp. n.

Length 6.0 mm.; width 2.5 mm.

Brown; edges and apex of mandibles black, ventral surface fuscous, margins of the segments golden-yellow.

Head (1.0 mm. wide) convex, smooth, shiny, finely carinate at sides; labrum 10-setose; neck slightly constricted behind eyes, hardly narrowed behind.

Prothorax transverse (1.8 × 1.3 mm.), strongly contracted in front, widest at middle (but practically as wide at base); base truncate, a little oblique at sides; apex deeply emarginate (as in the genus *Sfitakantha*), sides widely reflexed, rounded in front and faintly sinuate before base, border almost imperceptibly crenulate; front angles porrect, embracing head, hind angles right, transverse impressions—especially the hind one, which terminates at each end in a shallow fovea—and median line well marked; surface shiny but uneven, very sparsely and minutely pubescent, covered with a number of dark spots, which look like punctures.

Elytra two and a half times as long as prothorax, shoulders square, disk convex, margin explanate and reflexed as far as the lateral incision, a re-entrant angle at apex, sides moderately compressed; surface shiny, strongly granulate-punctate and pubescent, more sparsely on disk; sides roughly shagreened.

The joints of the front tarsi, which are very short and hairy and decrease gradually in size from base, do not appear to offer any sexual characters.

Distinguished at once from the other described species of the genus by its much larger size, front margin of labrum 10-setose, and the deeply emarginate apex of the prothorax.

W. Sarawak, Mount Matang, 31.i.14 (*G. E. Bryant*), 1 ex. in my collection.